
Recent trends in incidence, survival and mortality of laryngeal cancer in Northern Ireland

(A comparison between April-December of 2021, 2020 and 2018-2019)

Further information

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INCIDENCE

During the April-December period the number of cases of laryngeal cancer diagnosed decreased between 2018-2019 and 2021 by 13.3% from 75 cases per year to 65 cases.

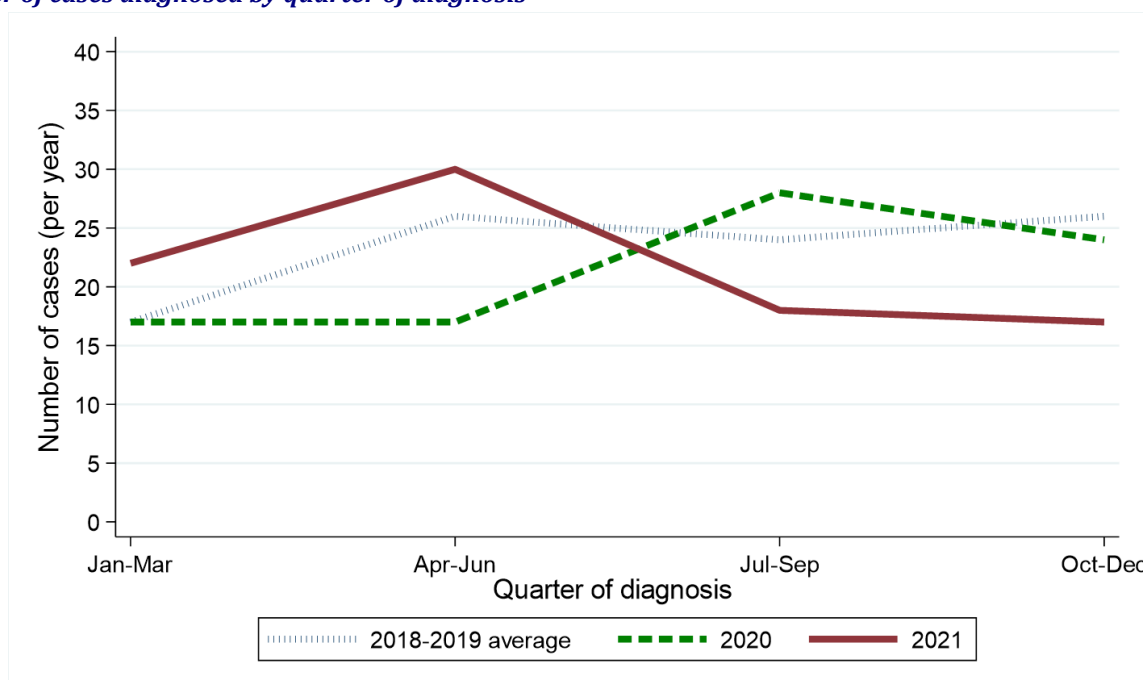
Table 1: Number of laryngeal cancer cases diagnosed in 2018-2021 by quarter and year of diagnosis

| Period of diagnosis | Annual total | Quarter diagnosed | | | |
|---------------------|--------------|-------------------|---------|----------|---------|
| | | Jan-Mar | Apr-Jun | Jul-Sept | Oct-Dec |
| 2018-2019* | 92 | 17 | 26 | 24 | 26 |
| 2020 | 86 | 17 | 17 | 28 | 24 |
| 2021 | 87 | 22 | 30 | 18 | 17 |

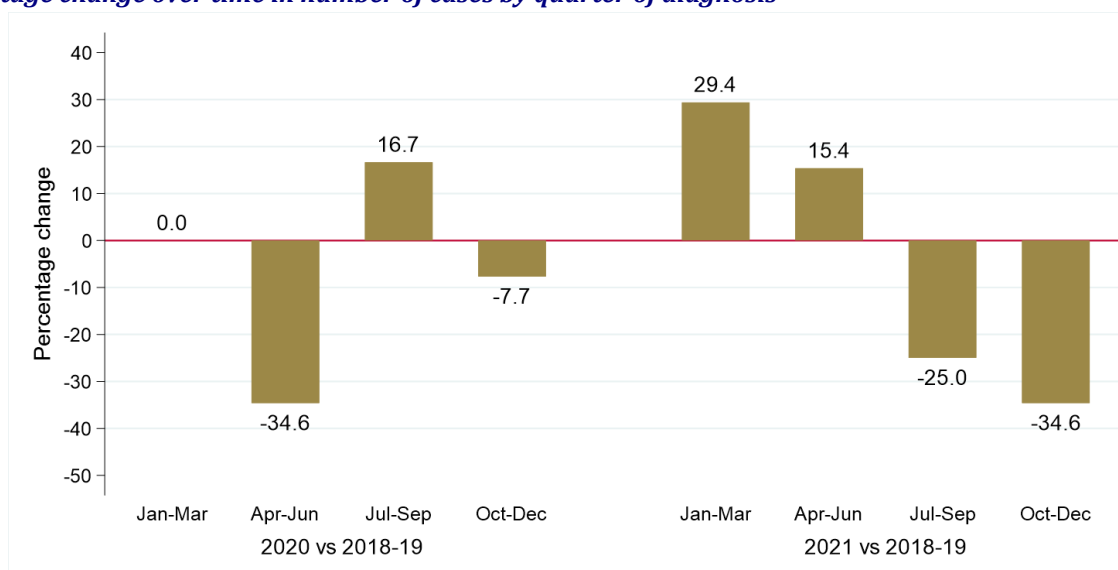
* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 1: Number of laryngeal cancer cases diagnosed in 2018-2021 by quarter and year of diagnosis

(a) Number of cases diagnosed by quarter of diagnosis



(b) Percentage change over time in number of cases by quarter of diagnosis



GENDER

Excluding the first quarter of each year the number of male laryngeal cancer cases diagnosed decreased by 8.8% from 57 per year in 2018-2019 to 52 in 2021. Between the same two time periods the number of female laryngeal cancer cases diagnosed decreased by 27.8% from 18 per year in 2018-2019 to 13 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

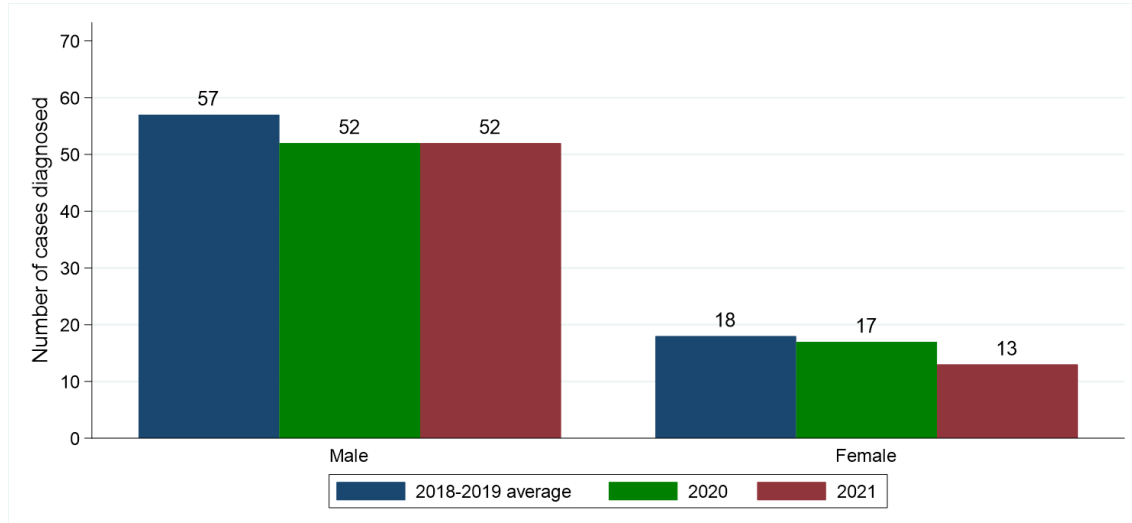
Table 2: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

| Gender | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|--------------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| All persons | 75 | 69 | 65 | -8.0% | -13.3% |
| Male | 57 (76.0%) | 52 (75.4%) | 52 (80.0%) | -8.8% | -8.8% |
| Female | 18 (24.0%) | 17 (24.6%) | 13 (20.0%) | -5.6% | -27.8% |

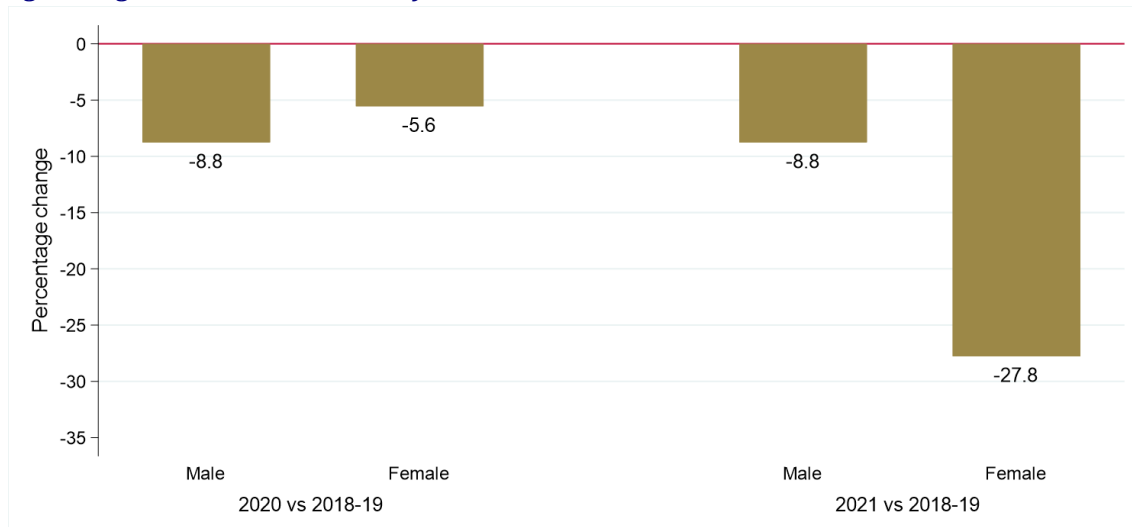
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 2: Number of laryngeal cancer cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



AGE

Excluding the first quarter of each year the number of cases of laryngeal cancer diagnosed among those aged 0 to 54 decreased by 33.3% from 12 per year in 2018-2019 to 8 in 2021. Between the same two time periods the number of cases of laryngeal cancer diagnosed among those aged 65 to 74 increased by 4.2% from 24 per year in 2018-2019 to 25 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

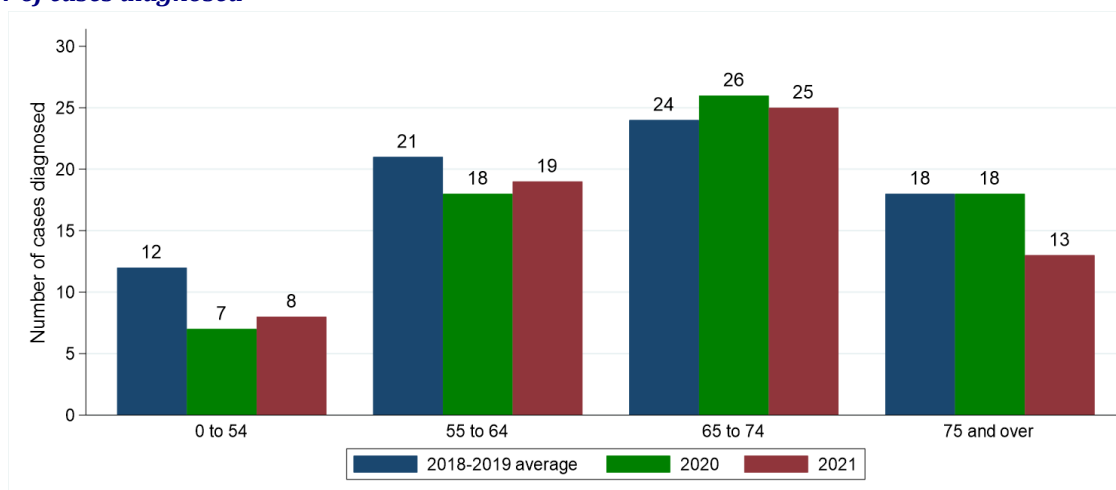
Table 3: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

| Age | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|-------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| All ages | 75 | 69 | 65 | -8.0% | -13.3% |
| 0 to 54 | 12 (16.0%) | 7 (10.1%) | 8 (12.3%) | -41.7% | -33.3% |
| 55 to 64 | 21 (28.0%) | 18 (26.1%) | 19 (29.2%) | -14.3% | -9.5% |
| 65 to 74 | 24 (32.0%) | 26 (37.7%) | 25 (38.5%) | +8.3% | +4.2% |
| 75 and over | 18 (24.0%) | 18 (26.1%) | 13 (20.0%) | 0.0% | -27.8% |

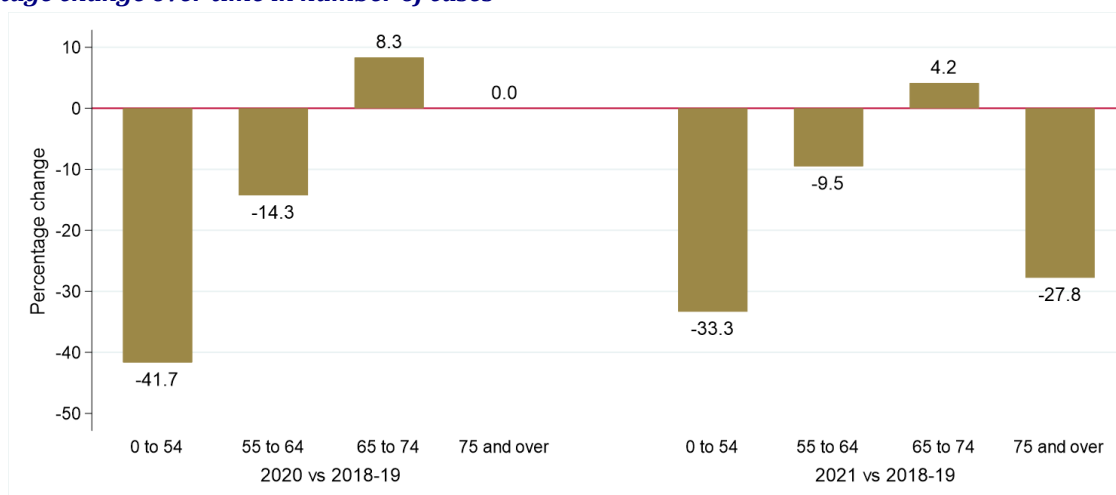
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 3: Number of laryngeal cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



HEALTH AND SOCIAL CARE TRUST

Excluding the first quarter of each year the number of cases of laryngeal cancer diagnosed among those resident in Belfast HSCT decreased by 42.1% from 19 per year in 2018-2019 to 11 in 2021. Between the same two time periods the number of cases of laryngeal cancer diagnosed among those resident in Western HSCT increased by 30.8% from 13 per year in 2018-2019 to 17 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was not statistically significant.

Table 4: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

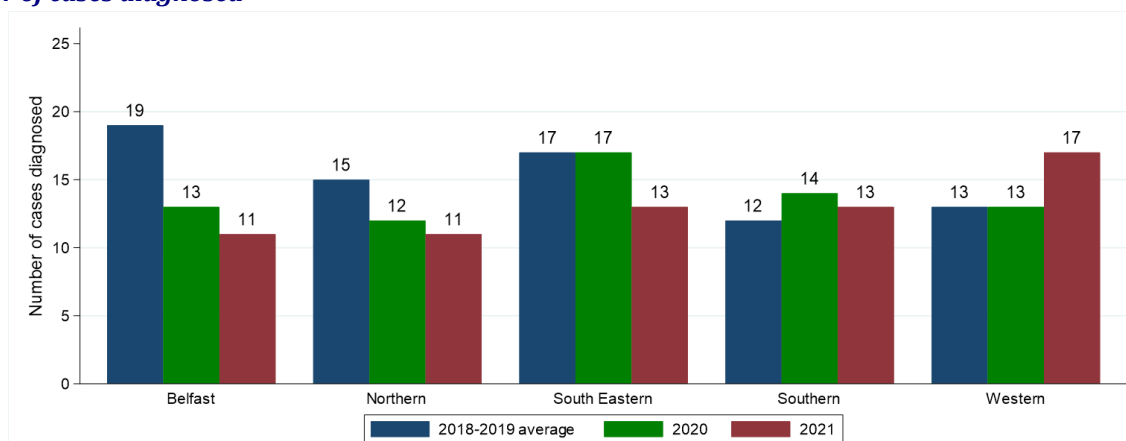
| Health and Social Care Trust | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|------------------------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| Northern Ireland | 75 | 69 | 65 | -8.0% | -13.3% |
| Belfast | 19 (25.3%) | 13 (18.8%) | 11 (16.9%) | -31.6% | -42.1% |
| Northern | 15 (20.0%) | 12 (17.4%) | 11 (16.9%) | -20.0% | -26.7% |
| South Eastern | 17 (22.7%) | 17 (24.6%) | 13 (20.0%) | 0.0% | -23.5% |
| Southern | 12 (16.0%) | 14 (20.3%) | 13 (20.0%) | +16.7% | +8.3% |
| Western | 13 (17.3%) | 13 (18.8%) | 17 (26.2%) | 0.0% | +30.8% |

* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

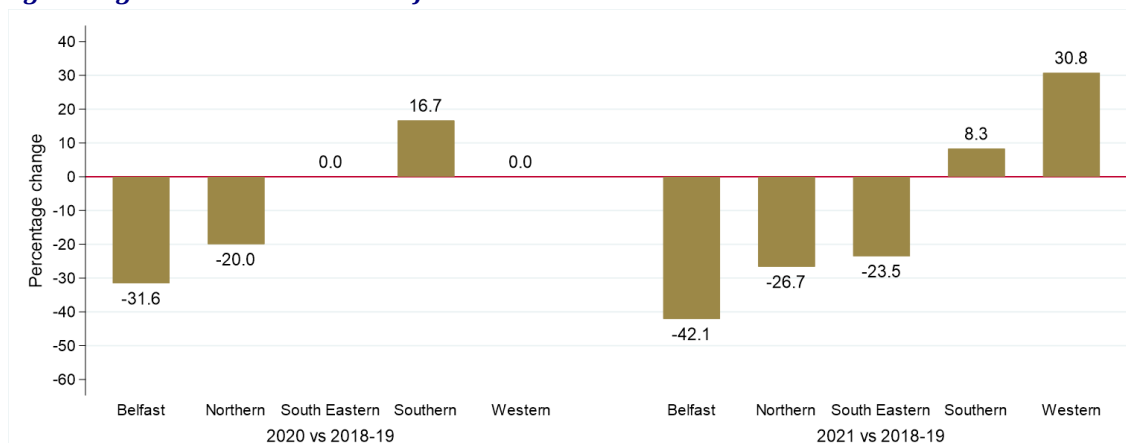
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 4: Number of laryngeal cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



SOCIO-ECONOMIC DEPRIVATION

Excluding the first quarter of each year the number of cases of laryngeal cancer diagnosed among those resident in the least deprived quintile decreased by 12.5% from 8 per year in 2018-2019 to 7 in 2021. Between the same two time periods the number of cases of laryngeal cancer diagnosed among those resident in the most deprived quintile did not change between 2018-2019 and 2021 with an average of 23 diagnosed each year. The change in case distribution by deprivation quintile between 2018-2019 and 2021 was not statistically significant.

Table 5: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

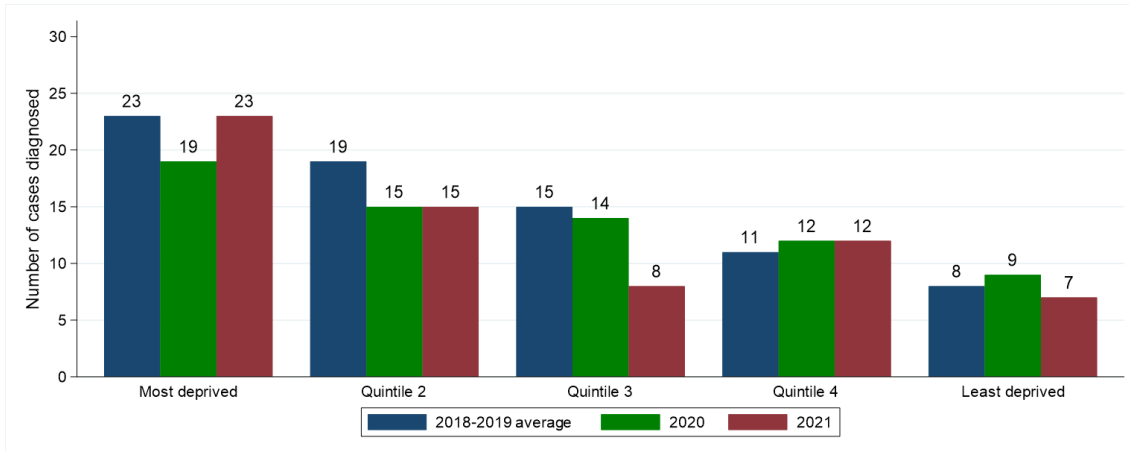
| Deprivation quintile | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|-------------------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| Northern Ireland | 75 | 69 | 65 | -8.0% | -13.3% |
| Most deprived | 23 (30.7%) | 19 (27.5%) | 23 (35.4%) | -17.4% | 0.0% |
| Quintile 2 | 19 (25.3%) | 15 (21.7%) | 15 (23.1%) | -21.1% | -21.1% |
| Quintile 3 | 15 (20.0%) | 14 (20.3%) | 8 (12.3%) | -6.7% | -46.7% |
| Quintile 4 | 11 (14.7%) | 12 (17.4%) | 12 (18.5%) | +9.1% | +9.1% |
| Least deprived | 8 (10.7%) | 9 (13.0%) | 7 (10.8%) | +12.5% | -12.5% |

* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

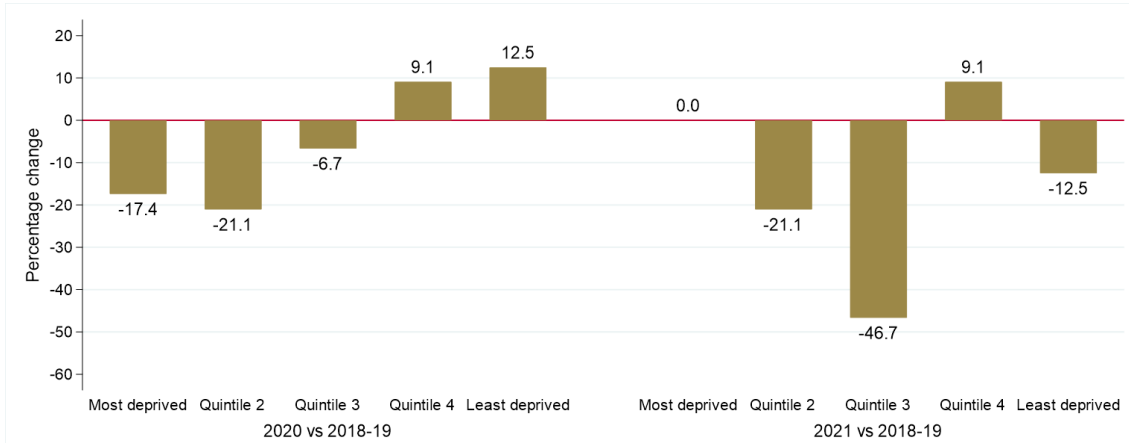
Note: Cases with unknown deprivation quintile are included in totals.

Figure 5: Number of laryngeal cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



STAGE AT DIAGNOSIS

The number of laryngeal cancer cases diagnosed at stage I in April to December of each year decreased by 25.0% from 24 per year in 2018-2019 to 18 in 2021. In addition the number of laryngeal cancer cases diagnosed at stage IV increased by 11.8% from 17 per year in 2018-2019 to 19 in 2021. As a proportion of all cases, stage IV diagnosis increased from 22.7% in 2018-2019 to 29.2% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

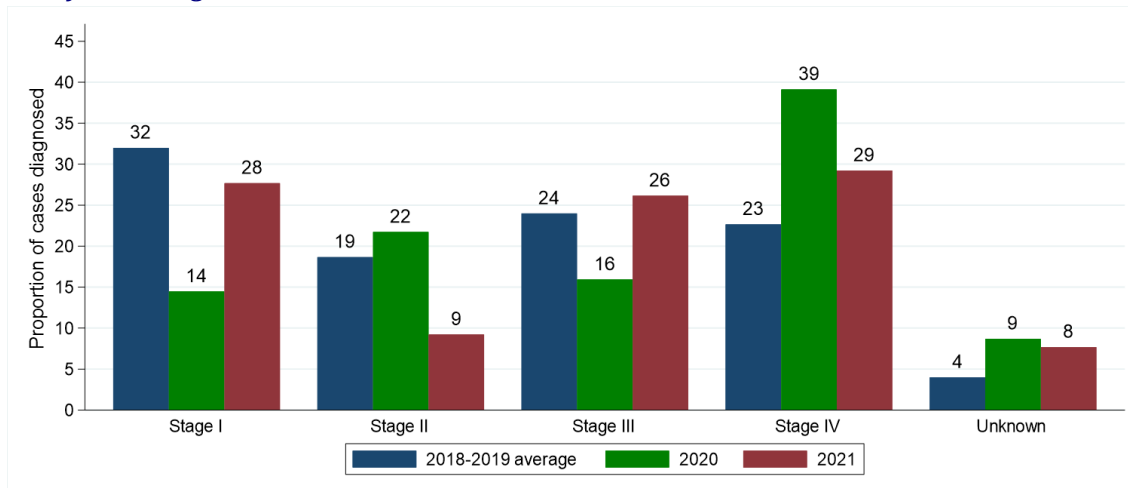
Table 6: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

| Stage at diagnosis | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|--------------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| All stages | 75 | 69 | 65 | -8.0% | -13.3% |
| Stage I | 24 (32.0%) | 10 (14.5%) | 18 (27.7%) | -58.3% | -25.0% |
| Stage II | 14 (18.7%) | 15 (21.7%) | 6 (9.2%) | +7.1% | -57.1% |
| Stage III | 18 (24.0%) | 11 (15.9%) | 17 (26.2%) | -38.9% | -5.6% |
| Stage IV | 17 (22.7%) | 27 (39.1%) | 19 (29.2%) | +58.8% | +11.8% |
| Unknown | 3 (4.0%) | 6 (8.7%) | 5 (7.7%) | +100.0% | +66.7% |

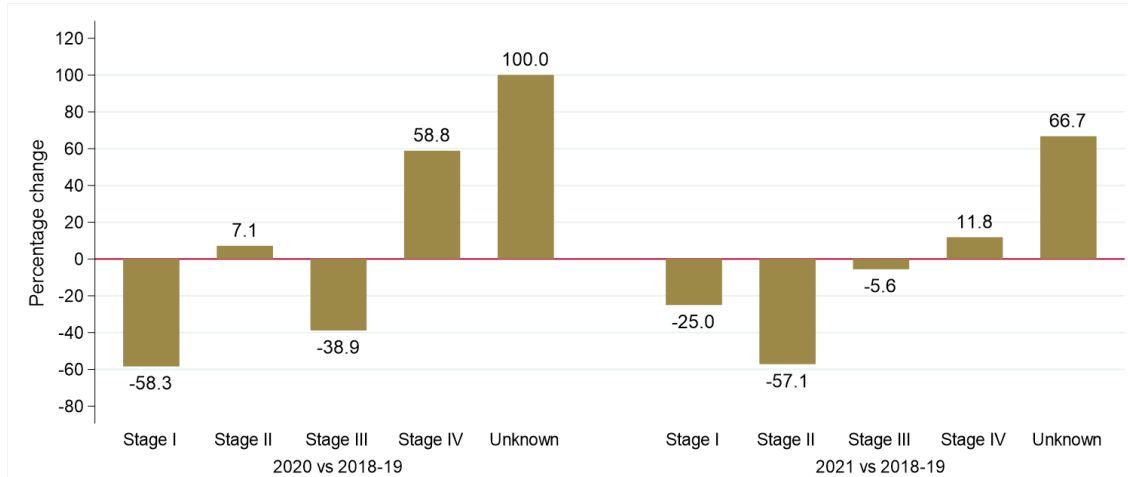
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 6: Proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

(a) Proportion of cases diagnosed



(b) Percentage change over time in number of cases



TREATMENT

Excluding the first quarter of each year the number of laryngeal cancer cases resulting in treatment by surgery within six months decreased by 20.0% from 30 per year in 2018-2019 to 24 in 2021. The resulting decrease in the proportion receiving surgery from 40.0% in 2018-2019 to 36.9% in 2021 was not statistically significant.

Between the same two time periods the number of laryngeal cancer cases resulting in treatment by systemic therapy increased by 37.5% from 8 per year in 2018-2019 to 11 in 2021. The resulting increase in the proportion receiving systemic therapy from 10.7% in 2018-2019 to 16.9% in 2021 was not statistically significant.

The number of laryngeal cancer cases treated with radiotherapy decreased by 10.0% from 50 per year in 2018-2019 to 45 in 2021. The resulting increase in the proportion receiving radiotherapy from 66.7% in 2018-2019 to 69.2% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of laryngeal cancer cases receiving none of these treatments within six months of diagnosis decreased by 37.5% from 8 per year in 2018-2019 to 5 in 2021. The resulting decrease in the proportion receiving none of these treatments from 10.7% in 2018-2019 to 7.7% in 2021 was not statistically significant.

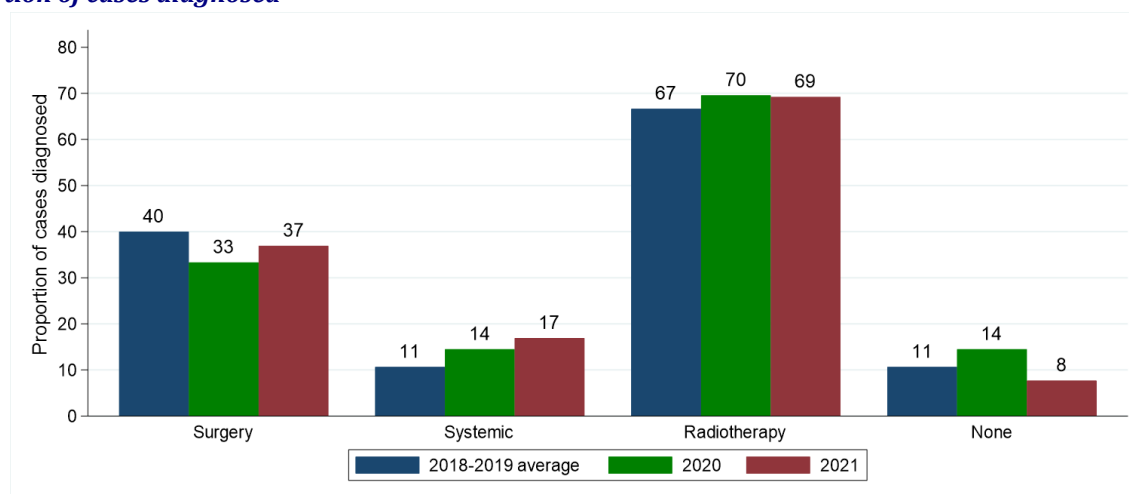
Table 7: Number and proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

| Treatment type | Period of diagnosis (Apr-Dec) | | | Percentage change | |
|---------------------------------|-------------------------------|------------|------------|-------------------|-------------------|
| | 2018-2019* | 2020 | 2021 | 2020 vs 2018-2019 | 2021 vs 2018-2019 |
| Surgery | 30 (40.0%) | 23 (33.3%) | 24 (36.9%) | -23.3% | -20.0% |
| Systemic therapy | 8 (10.7%) | 10 (14.5%) | 11 (16.9%) | +25.0% | +37.5% |
| Radiotherapy | 50 (66.7%) | 48 (69.6%) | 45 (69.2%) | -4.0% | -10.0% |
| None of these treatments | 8 (10.7%) | 10 (14.5%) | 5 (7.7%) | +25.0% | -37.5% |

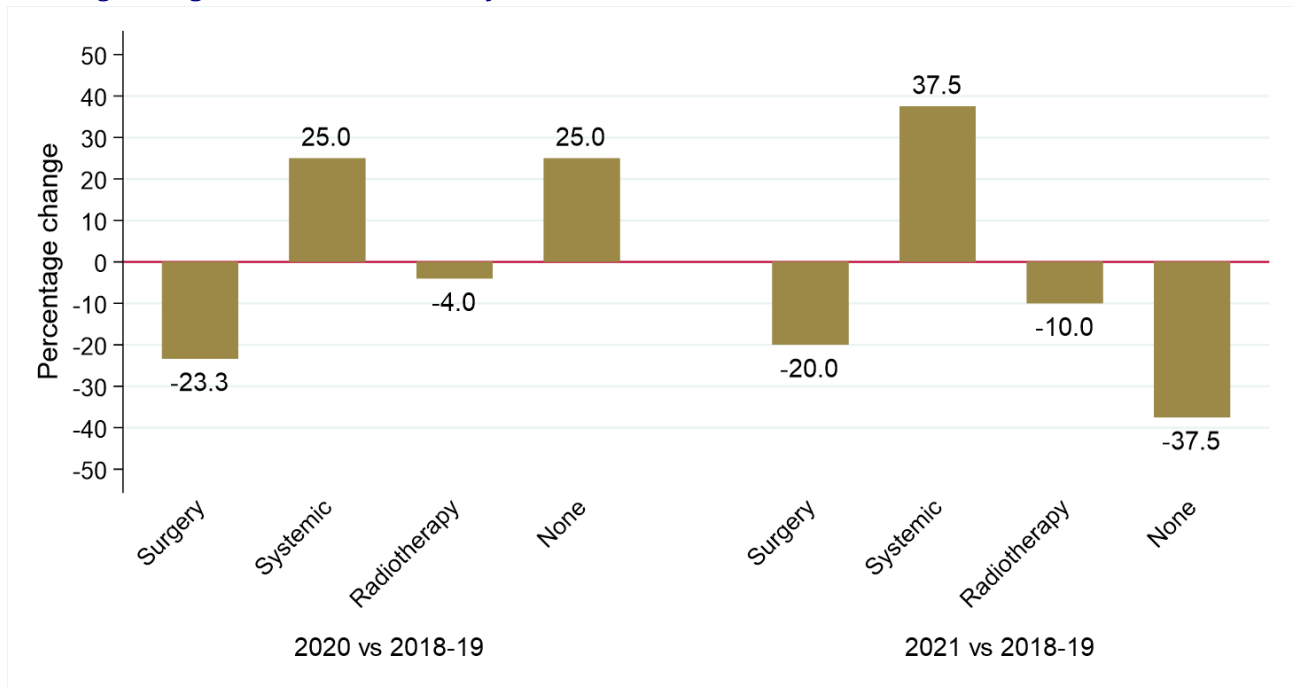
No statistically significant change compared to 2018-2019

Figure 7: Proportion of laryngeal cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

(a) Proportion of cases diagnosed



(b) Percentage change over time in number of cases



SURVIVAL

Changes in survival are evaluated using two measures. Observed survival examines the time between diagnosis and death from any cause. It thus represents what cancer patients experience, however, due to the inclusion of non-cancer deaths (e.g. heart disease), it may not reflect how changes in cancer care impact survival from cancer. Thus changes in age-standardised net survival are also examined. This measure provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It also assumes a standard age distribution thereby removing the impact of changes in the age distribution of cancer patients on changes in survival over time. While this measure is hypothetical, as it assumes patients can only die from cancer related factors, it is a better indicator of the impact of changes in cancer care on patient survival.

OBSERVED SURVIVAL

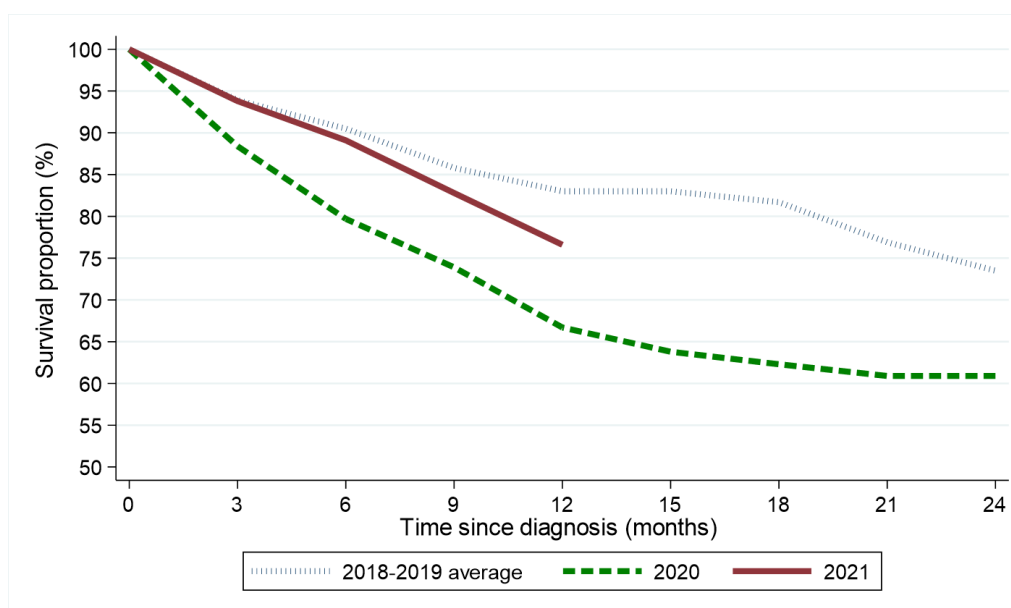
Survival among laryngeal cancer patients six months after diagnosis decreased from 90.5% among those diagnosed in April-December of 2018-2019 to 89.1% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 83.0% to 76.6%. This change was not statistically significant. The log-rank test of equality indicates no statistically significant difference between the survival functions for 2018-2019 and 2021 ($p=0.392$).

Table 8: Observed survival for patients with laryngeal cancer diagnosed in April-December of 2018-2021 by period of diagnosis

| Survival time | Period of diagnosis (Apr-Dec) | | |
|---------------|-------------------------------|-----------------------|-----------------------|
| | 2018-2019 | 2020 | 2021 |
| Three months | 93.9% (88.6% - 96.8%) | 88.4% (78.2% - 94.0%) | 93.8% (84.2% - 97.6%) |
| Six months | 90.5% (84.5% - 94.3%) | 79.7% (68.2% - 87.4%) | 89.1% (78.4% - 94.6%) |
| One year | 83.0% (75.9% - 88.2%) | 66.7% (54.2% - 76.4%) | 76.6% (64.2% - 85.1%) |
| Two years | 73.5% (65.6% - 79.9%) | 60.9% (48.3% - 71.2%) | - |

No statistically significant reductions compared to 2018-2019

Figure 8: Observed survival for patients with laryngeal cancer diagnosed in April-December of 2018-2021 by period of diagnosis



DEATHS FROM COVID-19

During 2021 there were a total of 6 deaths from Covid-19 among laryngeal cancer patients diagnosed at any point since 1993.

NET SURVIVAL

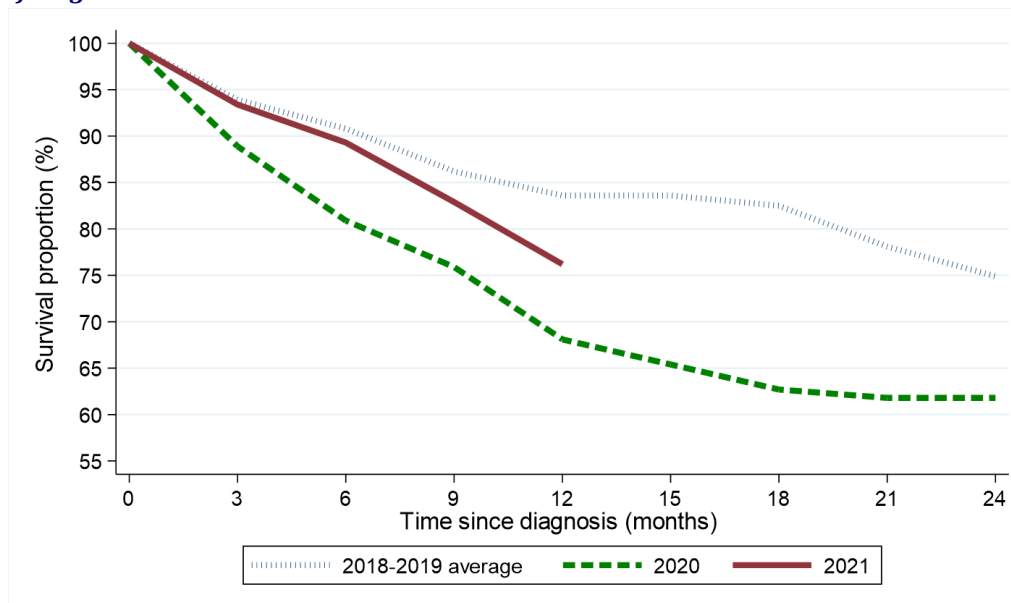
Net survival among laryngeal cancer patients six months after diagnosis decreased from 90.8% among those diagnosed in April-December of 2018-2019 to 89.3% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 83.6% to 76.2%. This change was not statistically significant.

Table 9: Age-standardised net survival for patients with laryngeal cancer diagnosed in April-December of 2018-2021 by period of diagnosis

| Survival time | Period of diagnosis (Apr-Dec) | | |
|---------------------|-------------------------------|-----------------------|------------------------|
| | 2018-2019 | 2020 | 2021 |
| Three months | 93.9% (89.8% - 98.2%) | 88.9% (81.2% - 97.3%) | 93.4% (86.9% - 100.0%) |
| Six months | 90.8% (86.0% - 95.9%) | 80.9% (71.1% - 92.1%) | 89.3% (81.1% - 98.3%) |
| One year | 83.6% (77.0% - 90.8%) | 68.1% (56.9% - 81.6%) | 76.2% (64.6% - 89.8%) |
| Two years | 74.9% (66.9% - 83.9%) | 61.8% (50.3% - 75.9%) | - |

No statistically significant reductions compared to 2018-2019

Figure 9: Age-standardised net survival for patients with laryngeal cancer diagnosed in April-December of 2018-2021 by period of diagnosis



Note: All patients are followed up to the end of 2022. This enables calculation of two-year survival for patients diagnosed in 2018-2020, however only survival up to one year from diagnosis can be calculated for patients diagnosed in 2021.

MORTALITY

During the April-December period the number of deaths from laryngeal cancer increased between 2018-2019 and 2021 by 20.8% from 24 deaths per year to 29 deaths.

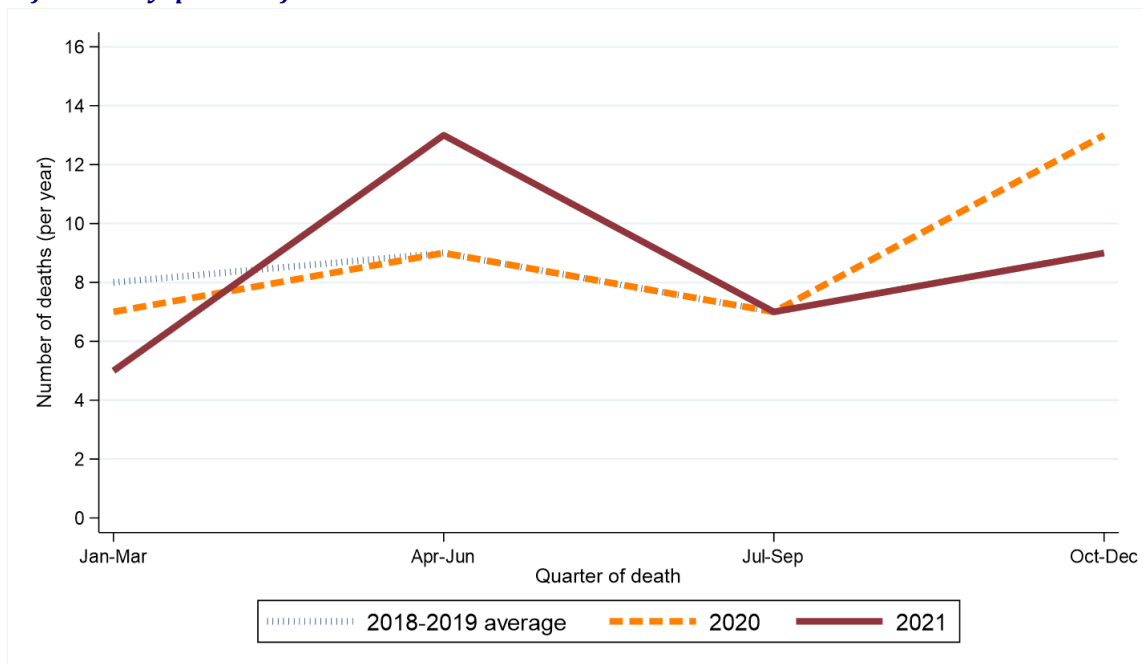
Table 10: Number of laryngeal cancer deaths in 2018-2021 by quarter and year of death

| Period of death | Annual total | Quarter of death | | | |
|-----------------|--------------|------------------|---------|----------|---------|
| | | Jan-Mar | Apr-Jun | Jul-Sept | Oct-Dec |
| 2018-2019* | 32 | 8 | 9 | 7 | 9 |
| 2020 | 36 | 7 | 9 | 7 | 13 |
| 2021 | 34 | 5 | 13 | 7 | 9 |

* Average deaths per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 10: Number of laryngeal cancer deaths in 2018-2021 by quarter and year of death

(a) Number of deaths by quarter of death



(b) Percentage change over time in number of deaths by quarter of death

